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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2019 Army **Date:** February 2018

<b>Appropriation/Budget Activity</b> 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development					<b>R-1 Program Element (Number/Name)</b> PE 0203735A / Combat Vehicle Improvement Programs							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	340.353	343.175	411.927	-	411.927	335.086	296.425	246.195	172.710	Continuing	Continuing
280: Recov Veh Improv Prog	-	0.000	5.000	13.321	-	13.321	15.159	94.591	85.054	57.436	0.000	270.561
330: Abrams Tank Improve Prog	-	117.707	108.570	164.840	-	164.840	105.901	66.332	58.338	53.425	0.000	675.113
371: Bradley Improve Prog	-	107.330	130.863	166.985	-	166.985	152.705	87.933	80.389	48.851	Continuing	Continuing
431: M113 IMPROVEMENTS	-	0.000	15.000	7.915	-	7.915	4.943	0.000	0.000	0.000	0.000	27.858
EE2: Stryker Improvement	-	114.988	80.642	58.866	-	58.866	56.378	47.569	22.414	12.998	0.000	393.855
FD8: Light Armored Vehicle Improvement	-	0.328	3.100	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.428

## Note

PE Number 0203735A/Project EE2 funds development efforts for the Stryker Double V-Hull A1 (DVH A1) Engineering Change Proposal (ECP) (formerly named Stryker ECP 1), Stryker 30mm Infantry Carrier Vehicle Dragoon (ICVD) Operational Needs Statement (ONS) (formerly named Stryker ONS Lethality), Stryker Survivability Enhancements, and Stryker Lethality ECPs (formerly referred to as Stryker ECP 2). PE Number 0203735A/Project FD8 funds the development of LAV25 enhancements.

## A. Mission Description and Budget Item Justification

This Program Element (PE) corrects vehicle deficiencies identified during Army operations; continues technical system upgrades to include the integration of applicable technologies on ground systems; addresses needed evolutionary enhancements to tracked combat vehicles; and develops technology improvements which have application to or insertion opportunities across multiple Ground Combat Systems vehicles. This PE provides combat effectiveness and Operating and Support (O&S) cost reduction enhancements for the Abrams tanks, Bradley Fighting Vehicles and Stryker Family of Vehicles (FOVs) through a series of product improvements.

The strategy for Abrams and Bradley will focus on incrementally delivering capability to the warfighter to meet both near-term limitations as well as mitigating gaps and maintaining combat overmatch in the future. This effort was approved by the Army Acquisition Executive in 3Q FY 2011.

The Recovery Vehicle Improvement program is a group of ECPs that will allow the current recovery vehicle to regain Single Vehicle Recovery (SVR) for the heaviest tracked combat vehicle. The current M88A2 is not capable of Single Vehicle Recovery of the M1A2 SEPv2 in all situations and the M1A2 SEPv3 fielding in FY 2020 will further exacerbate the recovery problem.

The Abrams M1A2 SEP V2 and M2/M3A3 Bradley Fighting Vehicles are at or exceed Space, Weight, and Power-Cooling (SWaP-C) limitations. In order to host and restore lost platform capability, the Abrams Tank and Bradley Fighting Vehicle programs will execute a series of Engineering Change Proposals (ECPs) to support the current embedded systems and to facilitate integration of technologies currently in development under other existing Programs of Record. The ECPs are not intended to

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<p>exceed the operational capability outlined in current system requirements documents, but rather to ensure that the existing system performance is not further degraded and that Army mission equipment packages can be integrated on the Abrams and Bradley Platforms.</p> <p>M113 improvements will develop an affordable solution for upgrading the M113s to enhance protection, survivability, mobility and power generation to support the current and future network systems. This will provide the necessary enhancements to the M113 capability for Echelons Above Brigade (EAB) units with priority to the forward deployed units and equipment sets. The Armored Multi Purpose Vehicle (AMPV) program will replace all M113 family of vehicles in Armored Brigade Combat Teams (ABCT).</p> <p>Stryker Improvement will address the development of Lethality, Survivability, Mobility, and Communication, Command and Control (C3) improvements within the Stryker Family of Vehicles (FoV). Principal development efforts include upgrades associated with the Stryker Double V-Hull (DVH) A1 Engineering Change Proposal (ECP), Stryker 30mm Infantry Carrier Vehicle Dragoon (ICVD) Operational Needs Statement (ONS), Stryker Survivability Enhancement, and Stryker Lethality ECPs. DVH A1 ECP power generation, suspension, and network upgrades will both restore Stryker DVH Space, Weight, and Power-Cooling (SWaP-C) lost as a result of incorporating vehicle changes to counter threats encountered during deployment operations while allowing the future network to be hosted without further degradation in vehicle protection and mobility. The Stryker 30mm ICVD ONS effort will address an Urgent Operational Need to increase the firepower of Stryker Infantry Carrier Vehicles (ICV) within the US Army European Command (USAREUR). The 30mm ICVD ONS effort will integrate a 30mm-equipped weapon station that will provide USAREUR with precision direct firepower to overwhelm the enemy in encounter actions and suppressive fire to preserve mounted and dismounted freedom of movement. The Stryker Survivability Enhancement will address evolving threats by assessing survivability improvements, to include passive protection systems, active protection systems, and an under-armor fire capability for Stryker-equipped reconnaissance troops. Stryker Lethality ECP efforts focus on the integration of a suite of complementary Mission Equipment Package (MEP) lethality upgrades (medium caliber weapon ECP, Common Remotely Operated Weapon Station-Javelin (CROWS-J) ONS, CROWS-J ECP, Anti-Tank Guided Missile (ATGM) ECP, common masted sensor ECP, and other capabilities) that will improve the suppressive fire and armored vehicle engagement capabilities across the Army's Stryker Brigade Combat Teams (SBCTs) and address Remote Weapon Station (RWS) and Improved Target Acquisitions System (ITAS) obsolescence issues that will impact fleet sustainment beginning in FY2020.</p> <p>Light Armored Vehicle improvement program will design, test and modify two Light Armored Vehicles (LAV-25A2s) for Low Velocity Air Drop (LVAD) to inform operational concepts for Infantry Brigade Combat Teams (IBCT) in support of Global Response Force early entry operations. This will directly support the expeditionary maneuver excursion that will be conducted by the XVIII Airborne Corps in FY17-18.</p>		

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Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development		PE 0203735A / Combat Vehicle Improvement Programs			
B. Program Change Summary (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	327.357	343.175	422.303	-	422.303
Current President's Budget	340.353	343.175	411.927	-	411.927
Total Adjustments	12.996	0.000	-10.376	-	-10.376
• Congressional General Reductions	-0.147	-			
• Congressional Directed Reductions	-12.826	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	38.000	-			
• SBIR/STTR Transfer	-11.531	-			
• Adjustments to Budget Years	-	-	-10.376	-	-10.376
• Amended 2017	-0.500	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) 280 / Recov Veh Improv Prog			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
280: Recov Veh Improv Prog	-	0.000	5.000	13.321	-	13.321	15.159	94.591	85.054	57.436	0.000	270.561
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
The M88A2 Heavy Equipment Recovery Combat Utility Lift and Evacuation System (HERCULES), designated as an ACAT IC program on 15 Jun 2016, has been providing towing, winching, and hoisting operations to support battlefield recovery operations and evacuation of heavy tanks and other tracked combat vehicles since its production and deployment in 1998. The HERCULES recovers tanks mired to different depths, removes M1 Abrams turrets and power packs, and uprights overturned heavy combat vehicles. Currently, the M88A2 is unable to safely perform Single Vehicle Recovery (SVR) of the Abrams tank in all conditions, due to added weight/survivability improvements made to the tank. In order to ensure SVR is met, Project Director- Main Battle Tank Systems (PD-MBTS) will develop and integrate technologies for the M88A2 HERCULES through an Operations and Support (O&S) initiative to meet its operational requirements of SVR throughout its life cycle. This initiative is not intended to exceed current operational capability, but will instead regain SVR capability of the heaviest tracked combat vehicle.												
Technical assessments and analyses will be used to evaluate design solutions to meet SVR, and inform key program decision points. The goal of the assessments will be to provide confidence to Army Leadership that a M88A2 HERCULES solution is affordable, achievable, and feasible using existing technology with manageable risk. Limited analyses, conducted to date, suggests that upgrades to the M88A2 track, suspension, hydraulics, engine, transmission and other related components are required.												
FY 2019 Base dollars will be used to continue the development of SVR ECP, initiate fabrication of vehicle prototypes, and continue the development of the transmission upgrade ECP (the longest developmental item).												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Program Management (PMO) Support								-	2.000	2.000	-	2.000
Description: Program Management Office Support includes Systems Engineering, Government and Contractor salaries, travel and other support costs required to effectively manage the program.												
FY 2018 Plans: The United States Government (USG) will conduct system and sub-system tests/analysis to inform decisions for key vehicle sub-systems such as engine, suspension, track, transmission and other related components to inform the Scope of Work for the Development contract for the M88A2 HERCULES program. The analysis and testing will occur at various government sites (Army Test and Evaluation Command (ATEC), Aberdeen Proving												

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Appropriation/Budget Activity 2040 / 7		R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs		Project (Number/Name) 280 / Recov Veh Improv Prog		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Ground (APG), Yuma Proving Grounds (YPG) and TARDEC). Contractors will conduct subsystem trades, technical evaluations, requirements development, and test support. <b>FY 2019 Base Plans:</b> Continue the United States Government (USG) acquisition activities to support a contractor full vehicle prototype delivery in FY 2021, continue the transmission ECP contract with a target completion in FY 2020. These activities will include conducting contractor surveillance, receipt of CDRLS, contract changes as required and conducting of key program milestones such as SRR.						
<b>Title:</b> Test and Evaluation <b>Description:</b> Concept and Evaluation activities include contractor and government testing, as well as test documentation development. Contractor prove-out testing will be conducted using U.S. Army test facilities. Evaluation activities also include the testing of other platform inbound technologies, along with the development of test documentation to include Test and Evaluation Master Plans, test procedures and reports. <b>FY 2018 Plans:</b> USG will begin conducting system/sub-system tests on engine, suspension, track, etc. The concept, demonstration and evaluation events will occur at various government sites (Army Test and Evaluation Command (ATEC), Aberdeen Proving Ground (APG), Yuma Proving Grounds (YPG) and TARDEC. Contractor will begin conducting sub-system trades, technical evaluations, requirements development, test support, deliverables, and powertrain upgrades. Begin developing the Test and Evaluation Master Plan (TEMP) to inform Request for Proposal (RFP) and award in FY 2020. <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Refinements to schedule highlight no need for test and evaluation in FY 2019.		-	3.000	-	-	-
<b>Title:</b> Product Development <b>Description:</b> Design, and Development of Engineering Change Proposals (ECPs). <b>FY 2019 Base Plans:</b> Funding supports contractor development of transmission and modernization ECPs. <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Funding increase from FY 2018 to FY 2019 allows for the program to start Product Development efforts.		-	-	11.321	-	11.321
Accomplishments/Planned Programs Subtotals		-	5.000	13.321	-	13.321

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## C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• GA0570: Improved Recovery Vehicle (M88A2 HERCULES)	91.963	72.402	110.500	42.354	152.854	-	-	10.500	-	215.454	543.173
• G80571: M88 FOV MODS	8.685	4.826	4.517	-	4.517	-	-	-	-	0.000	18.028

## Remarks

## D. Acquisition Strategy

The M88A2 HERCULES O&S initiative is designed to regain Single Vehicle Recovery (SVR) capability. An Acquisition Strategy is being developed for this effort.

## E. Performance Metrics

N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2019 Army</b>													<b>Date:</b> February 2018		
<b>Appropriation/Budget Activity</b> 2040 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>				<b>Project (Number/Name)</b> 280 / <i>Recov Veh Improv Prog</i>					
<b>Management Services (\$ in Millions)</b>				<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management Office (PMO) Support	MIPR	PMO Support Offices : Various	-	-		2.000	Dec 2017	2.000	Dec 2018	-		2.000	0.000	4.000	-
<b>Subtotal</b>			-	-		2.000		2.000		-		2.000	0.000	4.000	N/A
<b>Product Development (\$ in Millions)</b>				<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Product Development	Various	Various : TBD	-	-		-		11.321	Dec 2018	-		11.321	0.000	11.321	-
<b>Subtotal</b>			-	-		-		11.321		-		11.321	0.000	11.321	N/A
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Test and Evaluation	Various	Various : Various	-	-		3.000	Jul 2018	-		-		-	0.000	3.000	-
<b>Subtotal</b>			-	-		3.000		-		-		-	0.000	3.000	N/A
			<b>Prior Years</b>	<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	-		5.000		13.321		-		13.321	0.000	18.321	N/A
<b>Remarks</b>															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army												Date: February 2018																							
Appropriation/Budget Activity 2040 / 7												R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs												Project (Number/Name) 280 / Recov Veh Improv Prog											
Event Name	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023										
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4							
Modernization Transmission ECP Development																																			



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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs	Project (Number/Name) 280 / Recov Veh Improv Prog

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Modernization Transmission ECP Development	2	2019	4	2019

Note

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) 330 / Abrams Tank Improve Prog			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
330: Abrams Tank Improve Prog	-	117.707	108.570	164.840	-	164.840	105.901	66.332	58.338	53.425	0.000	675.113
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Army has approved Engineering Change Proposals (ECPs) for the Abrams Main Battle Tank to restore lost capability, host inbound technologies, and to meet objective performance requirements called out in approved platform requirements documents. The strategy for Abrams will focus on incrementally delivering capability to the warfighter to meet both near-term limitations as well as mitigating gaps and maintaining combat overmatch in the future. This approach was approved by the Army Acquisition Executive in 3Q FY2011.

The Abrams vehicle is at or exceeds Space, Weight, and Power-Cooling (SWaP-C) limitations. In order to restore lost platform capability, the Abrams Tank will execute a series of ECPs to support the current embedded systems and to facilitate integration of technologies currently in development. The ECPs are not intended to exceed the operational capability outlined in current system requirements documents, but rather to ensure that the existing system performance is not further degraded and that Army mission equipment packages can be integrated on the Abrams. The ECPs will incorporate lost power generation and distribution technologies, force protection and survivability improvements to counter evolving threats to include, but not limited to Active Protection Systems, technologies to mitigate obsolescence issues, in-bound technologies under development, and technologies to decrease the overall weight of the tank and technologies in support of any validated Army requirement.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>
<b>Title:</b> Abrams Power Engineering Change Proposal (ECP) 1A	10.000	7.998	12.283	-	12.283
<b>Description:</b> The improvements implemented through the Abrams Power ECP 1A program will restore lost power generation and distribution, mitigate impending obsolescence, and incorporate inbound technologies currently under development.					
<b>FY 2018 Plans:</b> The USG will complete Production Prove-Out Test (PPT). The USG will begin Production Qualification Testing (PQT), Live Fire Test and Evaluation (LFT&E), and preparations for Follow-on Operational Test and Evaluation (FOT&E). The team will continue to complete root cause and corrective actions (hardware and software) for failures found during testing. Logistics will complete technical manual development and begin conducting the logistics demonstration.					
<b>FY 2019 Base Plans:</b>					

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Appropriation/Budget Activity 2040 / 7		R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs		Project (Number/Name) 330 / Abrams Tank Improve Prog		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
The USG will complete Live Fire Test and Evaluation (LFT&E). The USG will continue Production Qualification Testing (PQT) and begin Follow-on Operational Test and Evaluation (FOT&E). Logistics will finalize technical manual development and complete the logistics demonstration.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> The ECP 1A increase in FY19 funding is needed to cover logistics product development in support of log demo. The additional funds will also cover the start of Production Qualification Test support.						
<b>Title:</b> Training Device Updates  <b>Description:</b> Development and design of training device upgrades to reflect upgrades to the vehicle.  <b>FY 2018 Plans:</b> Development, design, test, and evaluation activities of training device upgrade kits.  <b>FY 2019 Base Plans:</b> Continue development, design, test, and evaluation activities of training device upgrade kits.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Increase in FY19 is due to additional training device upgrades (maintenance trainers) coming on line in FY19 that were not part of the FY18 work.		-	3.300	7.231	-	7.231
<b>Title:</b> Abrams Lethality Engineering Change Proposal (ECP) 1B  <b>Description:</b> The Abrams Lethality ECP 1B program consists of lethality improvements. The primary focus is the integration of 3GEN Forward Looking Infrared (FLIR) and the integration of Ammunition Data Link (ADL) for the Advanced Multi-purpose (AMP) round. Additional improvements to the target acquisition sensors consist of inclusion of color cameras, laser capabilities, and image processing improvements. Other potential improvements consist of an improved environmental control system, laser warning receiver, vehicle smoke generation, and weight reduction efforts. Trade studies, analysis and technology maturation will be performed to evaluate prospective improvements, along with obsolescence mitigation, and incorporation of inbound technologies currently under development.  <b>FY 2018 Plans:</b> ECP 1B will continue preliminary design efforts. The primary tasks will be focused on systems engineering, design trade studies, engineering modeling and analysis, initial hardware mockups, and software development.		25.452	60.561	110.463	-	110.463

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Early hardware will be used to start Design Verification Testing (DVT). PM Abrams will continue to integrate the Advanced Multi-Purpose (AMP) round into the Abrams family of vehicles (FOV). <b>FY 2019 Base Plans:</b> ECP 1B will complete a Preliminary Design Review (PDR) in 1Q FY19 and begin critical design efforts. The primary tasks will be focused on systems engineering, design trade studies, engineering modeling and analysis, initial hardware mockups, and software development. Early hardware will be used to continue Design Verification Testing (DVT). Test and logistics planning will be completed throughout FY19. PM Abrams will continue to integrate the Advanced Multi-Purpose (AMP) round into the Abrams family of vehicles (FOV). <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> The ECP 1B program is ramping up from FY18 to FY19 to complete the Preliminary Design Review (PDR) and the majority of the Critical Design Phase. Significant long lead material and subcontractor labor will increase throughout FY19.						
<b>Title:</b> Program Management Office (PMO) Support <b>Description:</b> Program Management Office Support includes Systems Engineering and Government and Contractor salaries, travel and other support costs required to effectively manage the program. <b>FY 2018 Plans:</b> Continue Government Systems Engineering and Program Management office support in FY2018. This will include labor, training, travel, supplies, and equipment to effectively manage the program. <b>FY 2019 Base Plans:</b> Continue Government Systems Engineering and Program Management office support in FY2019. This will include labor, training, travel, supplies, and equipment to effectively manage the program. <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Program Management has decreased slightly in FY19 due to completion of some SEP V3 program tasks.		7.337	12.620	11.873	-	11.873
<b>Title:</b> Test & Evaluation - Engineering Change Proposal (ECP) 1A <b>Description:</b> Test and Evaluation activities includes contractor and government testing, as well as test documentation development. Contractor shakedown/proveout testing will be conducted using U.S. Army test facilities. Government development testing of prototype vehicles will evaluate vehicle performance, to include Reliability, Availability, and Maintainability testing. Early User evaluation will also be performed. Test and		7.234	24.091	22.990	-	22.990

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B. Accomplishments/Planned Programs (\$ in Millions)							FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
evaluation activities also include the testing of other platform inbound technologies, along with the development of test documentation to include Test and Evaluation Master Plans, test procedures, and reports.											
<b>FY 2018 Plans:</b> In FY18 the USG will complete ECP 1a Production Prove-Out Test (PPT) including all automotive RAM testing, and EMI/EMC testing. The USG will also conduct ECP 1a Live Fire Test and Evaluation (LFT&E) and transportability testing. The USG will begin ECP 1a Production Qualification Testing (PQT) and preparations for Follow-on Operational Test and Evaluation (FOT&E). These test and evaluation events will occur at various sites (Aberdeen Proving Ground, Yuma Proving Ground, and White Sands Missile Range).											
<b>FY 2019 Base Plans:</b> The USG will complete Live Fire Test and Evaluation (LFT&E). The USG will continue Production Qualification Testing (PQT) and begin Follow-on Operational Test and Evaluation (FOT&E).											
<b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> ECP 1A live fire testing wraps up half way through FY19 and requires slightly less funding than required in FY18.											
<b>Title:</b> Survivability Enhancements							67.684	-	-	-	-
<b>Description:</b> PM Abrams will integrate and test survivability, lethality, mobility, reliability, and architecture improvements on the Abrams Family of Vehicles. Force protection and survivability improvements to counter evolving threats include, but are not limited to, Active Protective Systems. Lethality improvements include, but are not limited to, cannon and ammunition upgrades.											
Accomplishments/Planned Programs Subtotals							117.707	108.570	164.840	-	164.840
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• GA0750: Abrams Upgrade Program	276.829	717.800	1,075.999	455.000	1,530.999	1,118.156	801.009	832.481	1,044.492	Continuing	Continuing
• GA0700: M1 Abrams Tank (MOD)	492.044	387.526	927.600	34.000	961.600	284.209	289.323	269.175	286.432	Continuing	Continuing
Remarks											

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2019 Army		<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	<b>Project (Number/Name)</b> 330 / <i>Abrams Tank Improve Prog</i>
<b>D. Acquisition Strategy</b> Abrams Power ECP 1A: Research & Development Contract - Sole Source, Cost Plus Incentive Fee (CPIF); ECP 1B - Research & Development Contract - Sole Source, Cost Plus Incentive Fee (CPIF)		
<b>E. Performance Metrics</b> N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army												Date: February 2018			
Appropriation/Budget Activity 2040 / 7						R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) 330 / Abrams Tank Improve Prog					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Abrams ECP 1A	SS/CPIF	General Dynamics Land Systems : Sterling Heights, MI	327.519	3.613	Feb 2017	7.998	Feb 2018	5.642	Feb 2019	-		5.642	Continuing	Continuing	Continuing
ECP 1A Training Device Upgrades	MIPR	PEO, STRI : Orlando, FL	-	-		3.300	Dec 2017	7.231	Dec 2018	-		7.231	Continuing	Continuing	Continuing
Abrams ECP 1B	SS/CPIF	General Dynamics Land Systems : Sterling Heights, MI	15.969	18.324	Aug 2017	58.561	Nov 2017	110.463	Nov 2018	-		110.463	Continuing	Continuing	Continuing
Advanced Multi-Purpose (AMP) Round	SS/CPIF	General Dynamics Land Systems : Sterling Heights, MI	-	7.128	Sep 2017	2.000	Mar 2018	-		-		-	0.000	9.128	-
Survivability Enhancements	Various	US Army TARDEC; Rafael Advanced Defense Systems; General Dynamics Land Systems (GDLS) : Sterling Heights, MI	10.645	41.243	Dec 2016	-		-		-		-	0.000	51.888	-
Subtotal			354.133	70.308		71.859		123.336		-		123.336	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Office (PMO)Support	MIPR	PMO Support Offices : Various	65.090	7.337	Jan 2017	12.620	Jan 2018	11.873	Jan 2019	-		11.873	Continuing	Continuing	Continuing
Program Management Office (PMO) Support - Survivability Enhancements	MIPR	PMO Support Offices : Various	0.127	2.080	Dec 2016	-		-		-		-	0.000	2.207	-
Subtotal			65.217	9.417		12.620		11.873		-		11.873	Continuing	Continuing	N/A

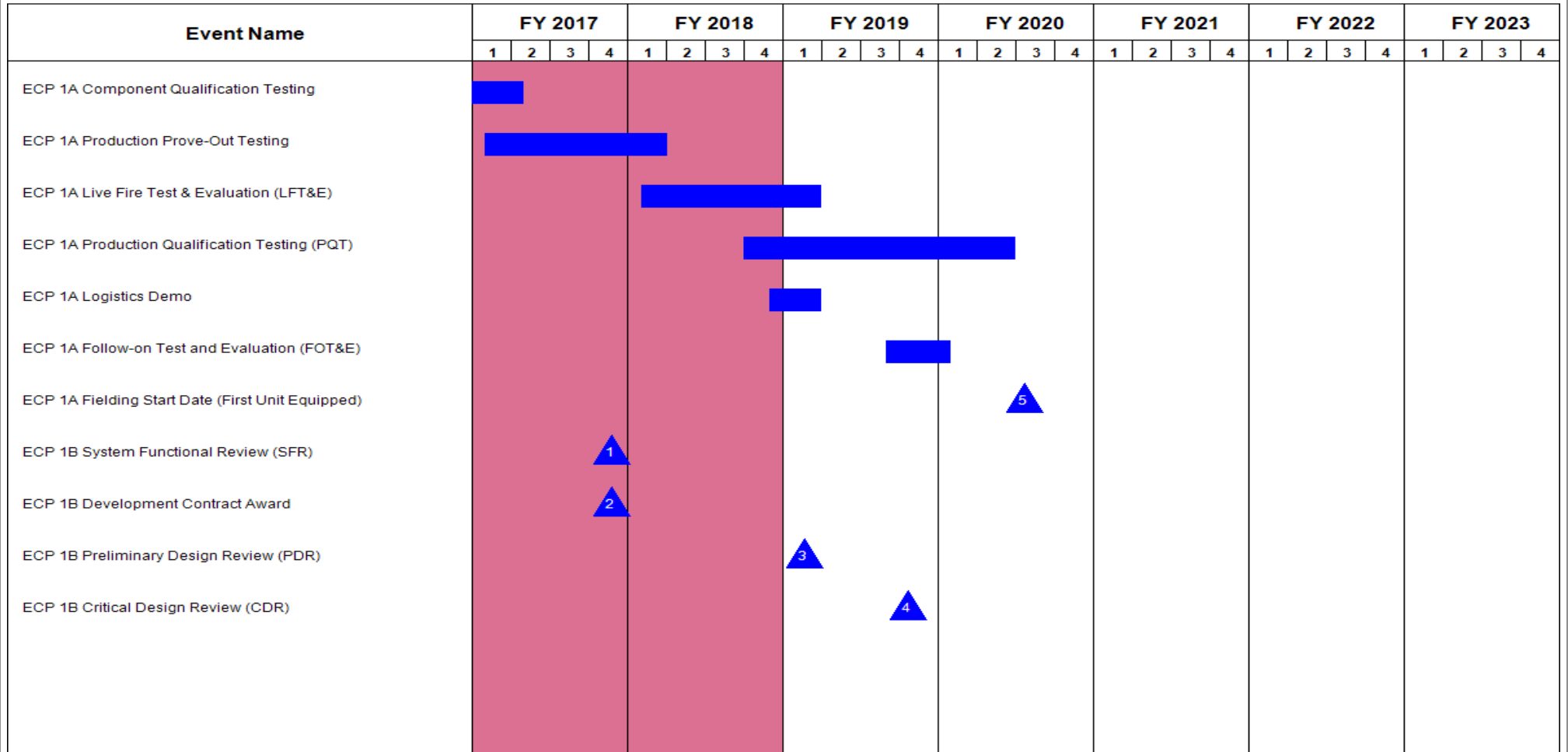
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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army												Date: February 2018			
Appropriation/Budget Activity 2040 / 7						R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) 330 / Abrams Tank Improve Prog					
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Testing	MIPR	Aberdeen Proving Ground; Yuma Proving Ground; White Sands Missile Range, : Various	28.368	7.234	Jan 2017	12.089	Jan 2018	22.990	Jan 2018	-		22.990	Continuing	Continuing	Continuing
Contractor Testing	Various	Various : Various	28.574	6.387	Feb 2017	12.002	Feb 2018	6.641	Feb 2019	-		6.641	Continuing	Continuing	Continuing
Government Testing - Survivability Enhancements	Various	Various : Various	0.130	24.361	Apr 2017	-		-		-		-	0.000	24.491	-
Subtotal			57.072	37.982		24.091		29.631		-		29.631	Continuing	Continuing	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			476.422	117.707		108.570		164.840		-		164.840	Continuing	Continuing	N/A
Remarks															



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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2019 Army			<b>Date:</b> February 2018		
<b>Appropriation/Budget Activity</b> 2040 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>		<b>Project (Number/Name)</b> 330 / <i>Abrams Tank Improve Prog</i>	



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2019 Army			<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	<b>Project (Number/Name)</b> 330 / <i>Abrams Tank Improve Prog</i>	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
ECP 1A Component Qualification Testing	4	2014	1	2017
ECP 1A Contractor Prototype Proveout	3	2015	1	2016
ECP 1A Production Prove-Out Testing	1	2016	1	2018
ECP 1A Live Fire Test & Evaluation (LFT&E)	1	2018	1	2019
ECP 1A Production Qualification Testing (PQT)	4	2018	2	2020
ECP 1A Logistics Demo	4	2018	1	2019
ECP 1A Follow-on Test and Evaluation (FOT&E)	3	2019	1	2020
ECP 1A Fielding Start Date (First Unit Equipped)	3	2020	3	2020
ECP 1B System Functional Review (SFR)	4	2017	4	2017
ECP 1B Development Contract Award	4	2017	4	2017
ECP 1B Preliminary Design Review (PDR)	1	2019	1	2019
ECP 1B Critical Design Review (CDR)	4	2019	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) 371 / Bradley Improve Prog			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
371: Bradley Improve Prog	-	107.330	130.863	166.985	-	166.985	152.705	87.933	80.389	48.851	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
The Bradley Family of Vehicles is at or exceeds Space, Weight, and Power-Cooling (SWAP-C) limitations. To restore lost platform capability and to host other Army existing programs of record, the Bradley Fighting Vehicle program shall execute a series of Engineering Change Proposals (ECPs). ECP 1 improves vehicle's track and suspension while the Bradley A4 ECP improves the power train and electrical system to enable the A3 fleet to host inbound technologies from Army program of records, including continued SINCGARS integration and Handheld Manpack Small (HMS) Radios and Joint Battle Command - Platform (JBC-P). The Bradley A4 development effort led to a production decision in FY 2017. The Bradley M2A4/M7A4 Vehicle is the combination of the M2A3/M7A3 Base Vehicle with ECP 1 and ECP 2 components installed and integrated. Additionally, a follow on Engineering Change Proposal to the Bradley A4 ECP, Bradley A5 ECP (Lethality) integrates Third Generation Forward Looking Infrared (3GEN FLIR) to replace the current FLIR for increased lethality through improved target acquisition capability along with other technology upgrades and insertions (i.e. laser pointing, color camera, laser range finder, etc). Product Manager Bradley will characterize a Non Developmental Item (NDI) to develop force protection and survivability improvements to counter evolving threats to include, but not limited to Active Protection System. A separate integration effort began in FY 2018 for an underbelly armor kit for improved survivability against blast threats.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Bradley A4 Engineering Change Proposal (ECP) Program								43.711	21.875	-	-	-
Description: The Bradley Fighting Vehicle System (BFVS) improvements implemented through the Engineering Change Proposal (ECP) Program will focus on restoring lost platform capability to support Army inbound technologies and to facilitate integration of technologies currently in development under other existing programs of record.												
FY 2018 Plans: The Bradley A4 ECP program will continue system level development and support software and reliability upgrades to include integrated electronic technical manuals (IETM) development and vehicle diagnostics. Conduct a logistics demonstration at the contractor's facility.												
FY 2018 to FY 2019 Increase/Decrease Statement: Bradley A4 has decreased to zero in FY 2019 since A4 EMD will be complete.												
Title: Bradley A5 Engineering Change Proposal (ECP) Program								18.575	85.155	128.039	-	128.039

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army				Date: February 2018		
Appropriation/Budget Activity 2040 / 7		R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs		Project (Number/Name) 371 / Bradley Improve Prog		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
<p><b>Description:</b> Continues Third Generation Forward Looking Infrared (3GEN FLIR) and other necessary technology integration efforts.</p> <p><b>FY 2018 Plans:</b> The Bradley A5 ECP (Lethality) program will continue the developmental engineering effort for integration of the 3GEN FLIR into the Bradley Commander's Independent Viewer (CIV) and Improved Bradley Acquisition System (IBAS), providing the commander an independent weapon station, and integrating additional lethality improvements within the sight systems (laser pointer, Laser Range Finder, and Color Day Camera). The A5 ECP will complete the System Functional Review (SFR) and begin working towards the Preliminary Design Review (PDR). The A5 ECP will coordinate commonality and synchronization with PD Main Battle Tank Systems Abrams SEPv4 ECP (Lethality), PM Ground Sensors, PM Close Combat Weapon Systems.</p> <p><b>FY 2019 Base Plans:</b> The Bradley A5 ECP (Lethality) program will continue the developmental engineering effort for integration of the 3GEN FLIR into the Bradley Commander's Independent Viewer (CIV) and Improved Bradley Acquisition System (IBAS), providing the commander an independent weapon station, and integrating additional lethality improvements within the sight systems (laser pointer, laser range finder, and color day camera). The A5 ECP will complete the Preliminary Design Review (PDR), support test planning development, and begin working towards the Critical Design Review (CDR). The A5 ECP will coordinate commonality and synchronization with PD Main Battle Tank Systems Abrams SEPv4 ECP (Lethality), PD Ground Sensors, PM Close Combat Weapon Systems.</p> <p><b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Bradley A5 has increased in FY 2019 to fund developmental engineering effort for integration of the 3GEN FLIR and integrating additional lethality improvements within the sight systems (laser pointer, laser range finder, and color day camera). The A5 ECP will complete the Preliminary Design Review (PDR), support test planning development, and begin working towards the Critical Design Review (CDR).</p>						
<p><b>Title:</b> Survivability Enhancements</p> <p><b>Description:</b> Initiate a Non Development Initiative (NDI) Active Protection System (APS) installation and characterization initiative to evaluate Bradley performance with an APS solution installed which includes developing force protection and survivability improvements to counter evolving threats to include, but not limited to Active Protection System in FY 2017. The Bradley Family of Vehicles (BFV) will integrate underbelly armor for improved survivability against underbelly blast events. Conduct integration activities for Army directed</p>		17.343	-	5.445	-	5.445

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army				Date: February 2018		
Appropriation/Budget Activity 2040 / 7		R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs		Project (Number/Name) 371 / Bradley Improve Prog		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
improvements such as, but not limited to, rear view sensor system, and installing a man portable short range air defense (SHORAD).						
<b>FY 2019 Base Plans:</b> Engineering, logistics, test, and program management to continue development; complete contractor testing; conduct USG testing; and complete the logistics support Maintenance Allocation Chart (MAC), provisioning plan, test support package, MWO development, and Logistics Demonstration (LOGDEMO) of the Underbelly Interim Solution (UBIS). Development of software upgrades such as, but not limited to, rearview sensor system and installation of a man portable short range air defense (SHORAD).						
<b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Survivability enhancements has increased FY 2019 to fund UBIS and software upgrades. FY 2018 NDI APS funding was included in PE 0604852A/XU9.						
<b>Title:</b> Program Management Office (PMO) Support		8.916	9.448	9.084	-	9.084
<b>Description:</b> Program Management Office Support includes systems engineering, government and contractor salaries, travel, training and other support costs required to effectively manage the program.						
<b>FY 2018 Plans:</b> Continue government program management and system engineering support costs. These funds cover the costs of government and direct support contractor salaries, travel, training, supplies, equipment and facilities to manage the issues resulting from Bradley A4 ECP testing and developing logistics products, engineering phases of Bradley A5 ECP (Lethality), and execute UBIS development activities.						
<b>FY 2019 Base Plans:</b> Continue government program management and system engineering support costs. These funds cover the costs of government and direct support contractor salaries, travel, training, supplies, equipment and facilities to manage the issues resulting from Bradley A4 ECP testing and developing logistics products, engineering phases of Bradley A5 ECP (Lethality), and execute UBIS and other development activities.						
<b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Program Management has decreased slightly in FY 2019 due to the fluctuations in support costs.						
<b>Title:</b> Test & Evaluation		18.785	14.385	17.125	-	17.125

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army			Date: February 2018			
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs	Project (Number/Name) 371 / Bradley Improve Prog				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
<p><b>Description:</b> Test &amp; Evaluation efforts support developmental and operational test events. These events include system sub-system test events, planning and development of test documentation.</p> <p><b>FY 2018 Plans:</b> In accordance with the OSD approved Bradley ECP Test and Evaluation Master Plan (TEMP), Bradley A4 ECP testing and evaluation completes all Reliability, Availability and Maintainability Test as well as conducts Live Fire testing to complete initial developmental testing on the program. Additional developmental testing will be completed to support the test-fix-test cycle and testing at Cold Regions Test Center in Alaska will be completed. The Logistics Demonstration will also be preformed to demonstrate supportability of the platform and associated logistics materials. Detailed planning will be conducted to support operational testing that will occur in FY 2019.</p> <p><b>FY 2019 Base Plans:</b> Conduct Bradley A4 production verification testing and Bradley A4 ECP operational testing. Continue MWO test activities.</p> <p><b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Test &amp; Evaluation has increased in FY 2019 to continue A4 production verification testing.</p>						
<p><b>Title:</b> Current Fleet Enhancements</p> <p><b>Description:</b> Current fleet enhancement efforts support development and testing of capabilities that will increase the reliability of the Bradley Family of Vehicles.</p> <p><b>FY 2019 Base Plans:</b> Conduct integration activities for Army directed improvements such as, but not limited to, rear view sensor system, vehicle generated smoke, and upgrade and maintain software for the current fleet of vehicles.</p> <p><b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Current fleet enhancements is a new effort in FY 2019 to conduct integration activities for Army directed improvements.</p>		-	-	7.292	-	7.292
Accomplishments/Planned Programs Subtotals		107.330	130.863	166.985	-	166.985

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018	
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) 371 / Bradley Improve Prog			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• GZ2400: Bradley Program (MOD)	265.333	474.851	625.424	50.000	675.424	637.190	663.460	650.662	840.733	0.000	4,207.653
• G80718: Bradley Program	72.800	200.000	0.000	205.000	205.000	-	-	-	-	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
Product Manager Bradley will execute a series of Engineering Change Proposals (ECP) reestablishing Space, Weight, Power and Cooling (SWAP-C) to facilitate integration of technologies being developed under existing Programs of Record (POR). ECP 1 production contract was awarded in FY 2014, and began fielding in FY 2015. Bradley A4 ECP is scheduled to begin fielding in FY 2020 to address powerpack and electrical power upgrades, which will enable the vehicle to host Army directed inbound technologies with no further performance degradation to the vehicle. Bradley A4 development has been executed on a sole source cost plus incentive fee contract to the current platform Original Equipment Manufacturer. Initiate studies and analysis in order to integrate Third Generation Forward Looking Infrared (3GEN FLIR) sights began in FY 2016. The 3GEN FLIR (A5 Lethality) system will be developed by Project Manager, Ground Sensors (PM GS) and be provided to Product Manager Bradley as a Horizontal Technology Insertion effort. Product Manager Bradley will characterize a Non Developmental Item (NDI) Active Protection System in order to develop force protection and survivability improvements to counter evolving threats.											
E. Performance Metrics											
N/A											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army												Date: February 2018			
Appropriation/Budget Activity 2040 / 7						R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) 371 / Bradley Improve Prog					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Bradley A4 Engineering Change Proposal (ECP) Program	SS/CPIF	PMO : Warren	79.009	-		-		-		-		-	0.000	79.009	-
Non Recurring Engineering-Bradley A4 ECP	SS/FFP	L3COM : Muskegon, MI	15.695	0.528	May 2017	-		-		-		-	Continuing	Continuing	Continuing
Non Recurring Engineering- Bradley A4 ECP	SS/CPIF	BAE : Sterling Heights, MI	209.834	43.183	Nov 2016	21.875	Nov 2017	-		-		-	Continuing	Continuing	Continuing
Bradley A5 ECP (Lethality)	SS/CPIF	BAE : Sterling Heights, MI	21.242	18.575	Nov 2016	80.574	Nov 2017	128.039	Jan 2019	-		128.039	Continuing	Continuing	Continuing
Survability Enhancements - Underbelly Armor	SS/CPIF	TBD : TBD	0.182	-		4.581	Jan 2018	5.445	Feb 2019	-		5.445	Continuing	Continuing	Continuing
Survivability Enhancements - Active Protection System (APS)	SS/CPIF	TBD : TBD	11.000	17.343	Jan 2017	-		-		-		-	Continuing	Continuing	Continuing
Current Fleet Enhancements	C/TBD	TBD : TBD	-	-		-		7.292	Nov 2019	-		7.292	0.000	7.292	-
Subtotal			336.962	79.629		107.030		140.776		-		140.776	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PMO/PEO Support/OGA	MIPR	PMO/PEO : Bradley ECP Program	24.238	3.076	Dec 2016	3.260	Dec 2017	2.283	Dec 2018	-		2.283	Continuing	Continuing	Continuing
Government Engineering Support	MIPR	Various : Bradley ECP Program	38.593	5.840	Dec 2016	6.188	Dec 2017	6.801	Dec 2018	-		6.801	Continuing	Continuing	Continuing
Subtotal			62.831	8.916		9.448		9.084		-		9.084	Continuing	Continuing	N/A



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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2019 Army</b>												<b>Date:</b> February 2018		
<b>Appropriation/Budget Activity</b> 2040 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>				<b>Project (Number/Name)</b> 371 / <i>Bradley Improve Prog</i>				

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Government Testing	MIPR	Various : Test Sites	14.269	18.785	Jan 2017	14.385	Dec 2017	17.125	Jan 2019	-		17.125	Continuing	Continuing	Continuing
<b>Subtotal</b>			14.269	18.785		14.385		17.125		-		17.125	Continuing	Continuing	N/A

	<b>Prior Years</b>	<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	414.062	107.330		130.863		166.985		-		166.985	Continuing	Continuing	N/A

**Remarks**

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army

Date: February 2018

Appropriation/Budget Activity

2040 / 7

R-1 Program Element (Number/Name)

PE 0203735A / Combat Vehicle  
Improvement Programs

Project (Number/Name)

371 / Bradley Improve Prog

Event Name	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Bradley M2A4 Engineering Change Proposal (ECP) Program	<div></div>																															
Production Qualification Test (PQT) - Bradley A4 ECP	<div></div>																															
Production Contract Award - Bradley A4 ECP	<div></div>																															
1st Vehicle Delivery - Bradley A4 ECP	<div></div>																															
Production Verification Testing (PVT) - Bradley A4 ECP	<div></div>																															
Operational Test and Evaluation - Bradley A4 ECP	<div></div>																															
First Unit Equipped (FUE) - Bradley A4 ECP	<div></div>																															
Bradley A5 ECP (Lethality) Program	<div></div>																															
System Requirements Review - Bradley A5 ECP (Lethality)	<div></div>																															
System Functionaltiy Review - Bradley A5 ECP (Lethality)	<div></div>																															
Preliminary Design Review - Bradley A5 ECP (Lethality)	<div></div>																															
Critical Design Review - Bradley A5 ECP (Lethality)	<div></div>																															
Component Qualification Testing - Bradley A5 ECP (Lethality)	<div></div>																															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2019 Army			<b>Date:</b> February 2018		
<b>Appropriation/Budget Activity</b> 2040 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>		<b>Project (Number/Name)</b> 371 / <i>Bradley Improve Prog</i>	

Event Name	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Contractor Vehicle Testing - Bradley A5 ECP (Lethality)																												
Production Qualification Test (PQT) - Bradley A5 ECP (Lethality)																												
Development Contract - UBIS																												
Test Readiness Review - UBIS																												
Engineer Change Proposal/ Engineering Release Record- UBIS																												
Production Contract Award - UBIS																												
Production Decision Point - UBIS																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2019 Army			<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	<b>Project (Number/Name)</b> 371 / <i>Bradley Improve Prog</i>	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Bradley M2A4 Engineering Change Proposal (ECP) Program	1	2012	4	2019
Component Qualification Testing - Bradley A4 ECP	3	2014	3	2015
Contractor Vehicle Testing - Bradley A4 ECP	3	2015	3	2016
Production Qualification Test (PQT) - Bradley A4 ECP	2	2016	2	2018
Production Contract Award - Bradley A4 ECP	1	2018	1	2018
1st Vehicle Delivery - Bradley A4 ECP	2	2019	2	2019
Production Verification Testing (PVT) - Bradley A4 ECP	2	2019	3	2019
Operational Test and Evaluation - Bradley A4 ECP	4	2019	1	2020
First Unit Equipped (FUE) - Bradley A4 ECP	3	2020	3	2020
Bradley A5 ECP (Lethality) Program	3	2016	3	2025
System Requirements Review - Bradley A5 ECP (Lethality)	3	2017	3	2017
System Functionality Review - Bradley A5 ECP (Lethality)	2	2018	2	2018
Preliminary Design Review - Bradley A5 ECP (Lethality)	2	2019	2	2019
Critical Design Review - Bradley A5 ECP (Lethality)	1	2020	1	2020
Component Qualification Testing - Bradley A5 ECP (Lethality)	3	2020	4	2020
Contractor Vehicle Testing - Bradley A5 ECP (Lethality)	1	2021	2	2022
Production Qualification Test (PQT) - Bradley A5 ECP (Lethality)	2	2022	2	2023
Development Contract - UBIS	2	2018	2	2018
Test Readiness Review - UBIS	2	2019	2	2019
Engineer Change Proposal/ Engineering Release Record- UBIS	4	2019	4	2019
Production Contract Award - UBIS	1	2020	1	2020
Production Decision Point - UBIS	1	2020	1	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) 431 / M113 IMPROVEMENTS			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
431: M113 IMPROVEMENTS	-	0.000	15.000	7.915	-	7.915	4.943	0.000	0.000	0.000	0.000	27.858
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
M113 improvements will develop an affordable solution for upgrading the M113s to enhance protection, survivability, mobility and power generation to support the current and future network systems. This will provide the necessary enhancements to the M113 capability for Echelons Above Brigade (EAB) units with priority to the forward deployed units and equipment sets. The Armored Multi Purpose Vehicle (AMPV) program will replace all M113 family of vehicles in Armored Brigade Combat Teams (ABCT).												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Product Development								-	14.100	6.015	-	6.015
Description: Design, fabrication and testing of Engineering Change Proposals (ECPs).												
FY 2018 Plans: Government RFP development and competitive source selection planning to include the preparation of government furnished material and technical data that will support a competitively awarded contract. After award the contractor will complete Engineering Change Proposals (ECP) vehicle modifications designs, fabricate ECP vehicle modifications kits for test, provide support to testing and finalize ECPs in support of production.												
FY 2019 Base Plans: Complete test and collect performance data to down select to one vendor for production.												
FY 2018 to FY 2019 Increase/Decrease Statement: Fixed price contract awarded in FY18 moving the focus on test execution in FY19.												
Title: Government Program Management								-	0.900	1.900	-	1.900
Description: Program Management Office Support includes Systems Engineering, support to logistics development, Government salaries, travel, training and other support costs required to effectively manage the program.												
FY 2018 Plans: Provide integrated program management to oversee technical development and fabrication efforts of the contractor. Provide program management to plan and oversee test efforts if test vehicles are delivered ahead of												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2019 Army						<b>Date:</b> February 2018					
<b>Appropriation/Budget Activity</b> 2040 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>			<b>Project (Number/Name)</b> 431 / M113 IMPROVEMENTS				

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>
<p>schedule.</p> <p><b><i>FY 2019 Base Plans:</i></b>  Program Management Office Support includes Systems Engineering, contract execution, support to Government test sites, Government salaries, travel, training and other support costs required to effectively manage the program. Government RFP development for follow-on production contract and competitive source selection planning and execution for planned award in FY20.</p> <p><b><i>FY 2018 to FY 2019 Increase/Decrease Statement:</i></b>  Fixed Price contract awarded in FY 2018 with test execution in FY 2019 requiring an increase in government support.</p>					
<b>Accomplishments/Planned Programs Subtotals</b>	-	15.000	7.915	-	7.915

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b><u>Line Item</u></b>	<b><u>FY 2017</u></b>	<b><u>FY 2018</u></b>	<b><u>FY 2019 Base</u></b>	<b><u>FY 2019 OCO</u></b>	<b><u>FY 2019 Total</u></b>	<b><u>FY 2020</u></b>	<b><u>FY 2021</u></b>	<b><u>FY 2022</u></b>	<b><u>FY 2023</u></b>	<b><u>Cost To Complete</u></b>	<b><u>Total Cost</u></b>
• GB1930: <i>CARRIER, MOD GB1930 WTCV</i>	-	-	0.000	-	0.000	49.563	49.562	49.560	-	0.000	148.685

**Remarks**

**D. Acquisition Strategy**  
The Acquisition strategy will be finalized upon receipt of finalized Department of the Army Directed Requirement with a planned competitive contract award by 2Q FY18. The Army plans to conduct a formal source selection to competitively down select to no more than three vendors. Vendor(s) will complete vehicle design and fabricate vehicle modifications for testing. Test results will be used to down select to one vendor for the follow-on production contract in FY20. Overall program schedule could be accelerated if vendor designs are mature.

**E. Performance Metrics**  
N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2019 Army												<b>Date:</b> February 2018			
<b>Appropriation/Budget Activity</b> 2040 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>						<b>Project (Number/Name)</b> 431 / M113 IMPROVEMENTS			

<b>Management Services (\$ in Millions)</b>				<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Product Development	C/FFP	TBD : TBD	-	-		14.100	May 2018	6.015	May 2019	-		6.015	0.000	20.115	-
Program Management Support	MIPR	TBD : TBD	-	-		0.900	Jan 2018	1.900	Jan 2019	-		1.900	0.000	2.800	-
<b>Subtotal</b>			-	-		15.000		7.915		-		7.915	0.000	22.915	N/A

	<b>Prior Years</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	-	-	15.000	7.915	-	7.915	0.000	22.915	N/A

**Remarks**

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army																Date: February 2018																
Appropriation/Budget Activity 2040 / 7										R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>										Project (Number/Name) 431 / M113 IMPROVEMENTS												
Event Name	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
RFP Release					1																											
Contract Award					2																											
Test																																



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2019 Army			<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	<b>Project (Number/Name)</b> 431 / M113 IMPROVEMENTS	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
RFP Release	1	2018	1	2018
Contract Award	2	2018	2	2018
Test	3	2018	3	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>				Project (Number/Name) EE2 / <i>Stryker Improvement</i>			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
EE2: <i>Stryker Improvement</i>	-	114.988	80.642	58.866	-	58.866	56.378	47.569	22.414	12.998	0.000	393.855
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note PE Number 0203735A/Project EE2 funds development efforts for the Stryker Double V-Hull A1 (DVH A1) Engineering Change Proposal (ECP) (formerly named Stryker ECP 1), Stryker 30mm Infantry Carrier Vehicle Dragoon (ICVD) Operational Needs Statement (ONS) (formerly named Stryker ONS Lethality), Stryker Survivability Enhancements, and Stryker Lethality ECPs (formerly referred to as Stryker ECP 2).												
A. Mission Description and Budget Item Justification Stryker Improvement will address the development of Lethality, Survivability, Mobility, and Communication, Command and Control (C3) improvements within the Stryker Family of Vehicles (FoV). Principal development efforts include upgrades associated with the Stryker Double V-Hull (DVH) A1 Engineering Change Proposal (ECP), Stryker 30mm Infantry Carrier Vehicle Dragoon (ICVD) Operational Needs Statement (ONS), Stryker Survivability Enhancement, and Stryker Lethality ECPs. DVH A1 ECP power generation, suspension, and network upgrades will both restore Stryker DVH Space, Weight, and Power-Cooling (SWaP-C) lost as a result of incorporating vehicle changes to counter threats encountered during deployment operations while allowing the future network to be hosted without further degradation in vehicle protection and mobility. The Stryker 30mm ICVD ONS effort will address an Urgent Operational Need to increase the firepower of Stryker Infantry Carrier Vehicles (ICV) within the US Army European Command (USAREUR). The 30mm ICVD ONS effort will integrate a 30mm-equipped weapon station that will provide USAREUR with precision direct firepower to overwhelm the enemy in encounter actions and suppressive fire to preserve mounted and dismounted freedom of movement. The Stryker Survivability Enhancement will address evolving threats by assessing survivability improvements, to include passive protection systems, active protection systems, and an under-armor fire capability for Stryker-equipped reconnaissance troops. Stryker Lethality ECP efforts focus on the integration of a suite of complementary Mission Equipment Package (MEP) lethality upgrades (medium caliber weapon ECP, Common Remotely Operated Weapon Station-Javelin (CROWS-J) ONS, CROWS-J ECP, Anti-Tank Guided Missile (ATGM) ECP, common masted sensor ECP, and other capabilities) that will improve the suppressive fire and armored vehicle engagement capabilities across the Army's Stryker Brigade Combat Teams (SBCTs) and address Remote Weapon Station (RWS) and Improved Target Acquisitions System (ITAS) obsolescence issues that will impact fleet sustainment beginning in FY2020.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Stryker DVH A1 ECP Development (Engineering/Prototypes)								14.278	-	7.883	-	7.883
Description: Funding is provided for the following effort												
FY 2019 Base Plans: Continuing DVH A1 ECP engineering efforts, to include finalization of In-Vehicle Network (IVN) design, development, validation/verification and logistic demonstration of revisions to Stryker Operator and Maintenance												

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army				Date: February 2018				
Appropriation/Budget Activity 2040 / 7		R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs		Project (Number/Name) EE2 / Stryker Improvement				
B. Accomplishments/Planned Programs (\$ in Millions)				FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Manuals, provisioning of DVH A1 ECP-unique parts, and incorporation of DVH A1 ECP design changes resulting from deficiencies identified during prototype build and development testing. <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> No funding requirements for Development in FY2018.								
<b>Title:</b> Stryker DVH A1 ECP Testing <b>Description:</b> Funding is provided for the following effort  <b>FY 2018 Plans:</b> Continuing test execution activities for the Stryker ECP 1 upgrade technologies, including tests for Communications, Command, and Control (C3) and electronics, and information assurance testing. These events will be conducted at various test sites throughout the US including Yuma Proving Ground (YPG), Electronic Proving Ground (EPG), and White Sands Missile Range (WSMR). Conduct Follow-on Operational Test & Evaluation (FOT&E).  <b>FY 2019 Base Plans:</b> Completion of DVH A1 ECP test execution and development of final assessment/report.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> FY 2019 decrease of funding due to a single final test event occurring in FY 2019, the DVH A1 ECP Capabilities Set test.				7.023	18.760	1.186	-	1.186
<b>Title:</b> Stryker DVH A1 Training Device Updates <b>Description:</b> Funding is provided for the following effort  <b>FY 2019 Base Plans:</b> Development of updates to Stryker training devices resulting from DVH A1 ECP engine, alternator, suspension, and network design changes.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> FY19 funding initiates development of updates to Stryker training devices resulting from DVH A1 engine, alternator, suspension, and network design changes.				-	-	1.242	-	1.242
<b>Title:</b> Stryker DVH A1 Contractor Support to Test <b>Description:</b> Funding is provided for the following effort				12.220	0.080	2.222	-	2.222

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army			Date: February 2018			
Appropriation/Budget Activity 2040 / 7		R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs		Project (Number/Name) EE2 / Stryker Improvement		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
FY 2018 Plans: Continuing contractor technical support (system troubleshooting, maintenance and repair of prototypes during execution of tests) to ECP 1 developmental test and operational test.						
FY 2019 Base Plans: Continuing contractor technical support (system troubleshooting, maintenance and repair of prototypes during execution of tests) to ECP 1.						
FY 2018 to FY 2019 Increase/Decrease Statement: FY 2019 increase due to ramp up of ECP1 developmental an operational testing.						
Title: Stryker 30mm ICVD ONS Testing		17.000	-	-	-	-
Title: Stryker 30mm ICVD ONS Training Device Updates		0.393	-	-	-	-
Title: Stryker 30mm ICVD ONS Contractor Support to Test		10.114	-	-	-	-
Title: Survivability Enhancements Description: Funding is provided for the following effort		14.364	2.133	-	-	-
FY 2018 Plans: Continuing assessment of force protection and survivability improvements, to include passive and protection systems.						
FY 2018 to FY 2019 Increase/Decrease Statement: FY 2019 NDI APS funding transferred to PE0604852A/XU9.						
Title: Stryker Lethality ECPs Development (Engineering/Prototypes) Description: Funding is provided for the following effort		21.144	50.639	23.727	-	23.727
FY 2018 Plans: Continuing developmental engineering of the Engineering Change Proposal (ECP) 2 lethality upgrades to include under armor Javelin, medium caliber weapon, and improved target acquisition optics.						
FY 2019 Base Plans:						

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army			Date: February 2018			
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs	Project (Number/Name) EE2 / Stryker Improvement				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Stryker Lethality ECPs developmental engineering to include completion of CROWS-J ECP integration, continuation of ATGM ECP integration, and continuation of medium caliber weapon system design. <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Funding decrease in FY 2019 due to completion of CROWS-J ONS and work accomplished on CROWS-J ECP in FY 2018. FY 2019 completes design of the CROWS-J ECP and ATGM ECP, and continues development of the medium caliber weapon system.						
<b>Title:</b> Stryker Lethality ECPs Testing <b>Description:</b> Funding is provided for the following effort  <b>FY 2018 Plans:</b> Initiation of developmental test, to include safety, performance and environmental test planning and execution activities for the Stryker ECP 2 under armor Javelin effort.  <b>FY 2019 Base Plans:</b> Continuation of developmental test, to include safety, performance and environmental test planning and execution activities for the CROWS-J ECP.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> FY18 funding supports initial test planning activities for the CROWS-J ECP effort. FY19 funding supports the execution of CROWS-J ECP developmental testing.		3.851	0.380	5.016	-	5.016
<b>Title:</b> Stryker Lethality ECPs Contractor Support to Test <b>Description:</b> Funding is provided for the following effort  <b>FY 2019 Base Plans:</b> Contractor technical support to government safety, performance and environmental test execution activities for the CROWS-J ECP effort.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Contractor technical support (system troubleshooting, maintenance and repair of prototypes during execution of tests) for the CROWS-J ECP effort initiates in FY 2019.		1.015	-	1.572	-	1.572
<b>Title:</b> Government Systems Engineering and Project Management <b>Description:</b> Funding is provided for the following effort		13.586	8.650	16.018	-	16.018

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2019 Army								<b>Date:</b> February 2018				
<b>Appropriation/Budget Activity</b> 2040 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>				<b>Project (Number/Name)</b> EE2 / <i>Stryker Improvement</i>				
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>
<p><b><i>FY 2018 Plans:</i></b> Continuing Government Systems Engineering and Program Management support (labor, travel, training, supplies, and equipment) to support ECP 1, ONS Lethality, Survivability Enhancements, and ECP 2 development efforts. Includes execution of an ECP 2 medium caliber weapon Source Selection and Evaluation Board (SSEB).</p> <p><b><i>FY 2019 Base Plans:</i></b> Continuing Government Systems Engineering and Program Management support (labor, travel, training, supplies, and equipment) for Stryker DVH A1 ECP, 30mm ICVD ONS, Survivability Enhancement, and Lethality ECP (CROWS-J ECP, ATGM ECP, medium caliber weapon system) development efforts. Includes completion of a medium caliber weapon system Source Selection and Evaluation Board (SSEB).</p> <p><b><i>FY 2018 to FY 2019 Increase/Decrease Statement:</i></b> FY 2019 includes additional armament-specific systems engineering and program management support necessary to execute Stryker 30mm ECP development engineering. Additionally, FY 2019 includes increased program management support necessary to develop plans required to initiate medium caliber weapon system developmental test in FY 2020.</p>												
<b>Accomplishments/Planned Programs Subtotals</b>								114.988	80.642	58.866	-	58.866
<b>C. Other Program Funding Summary (\$ in Millions)</b>												
<u>Line Item</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019 Base</u>	<u>FY 2019 OCO</u>	<u>FY 2019 Total</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>Cost To Complete</u>	<u>Total Cost</u>	
• GM0100: <i>Stryker (Mod)</i>	82.681	97.552	287.490	-	287.490	465.780	570.391	544.979	500.041	Continuing	Continuing	
• G85200: <i>Stryker Upgrade</i>	418.561	-	21.900	-	21.900	-	-	-	-	Continuing	Continuing	
<b>Remarks</b>												
AAE approval for a 3rd Double V-Hull (DVH) SBCT Brigade of 337 Exchange Vehicles was given on July 26, 2013 (funded in G85100). A successful production decision for the DVH A1 Engineering Change Proposal (ECP) was executed on July 22, 2016, which provided approval to begin 4th Brigade DVH A1 ECP production (funded in Stryker Upgrade - G85200). Approval to procure an additional 123 DVH A1 ECP vehicles was received through a successful decision point on April 26, 2017. Stryker MOD (GM0100) supports Stryker Fleet modifications to include Infantry Carrier Vehicle Dragoon (ICVD) production and fielding in FY16-18, DVH A1 ECP retrofits in FY19-23, and Lethality ECP retrofits in FY19-23.												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2019 Army		<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	<b>Project (Number/Name)</b> EE2 / <i>Stryker Improvement</i>
<p><b><u>D. Acquisition Strategy</u></b></p> <p>The Stryker Engineering Change Proposal (ECP) 1 effort will buy back the vehicle space, weight, and power margin lost due to the addition of numerous kits in response to eleven years of war (20-combat rotations &amp; 37+ million total miles), in order to allow integration of the future network (as directed by VCSA in August 2011) without further degrading the performance of the platform. In May 2012, Stryker ECP 1 program (Phase I) was approved, permitting preliminary design and integration efforts on both the Flat Bottom (FB) and Double-V Hull (DVH) variants. In March 2013, Phase II was approved continuing design and integration of ECP 1 mechanical power, electrical power generation, chassis upgrades, and the in-vehicle network upgrades. Based on additional testing conducted in the summer of 2013, the decision was made to focus ECP 1 efforts on the DVH platform and defer efforts on flat-bottom Strykers. The effort has subsequently been renamed the Stryker DVH A1 ECP. The DVH A1 ECP Phase II contract, awarded November 25, 2013, continues development engineering, prototype build test and evaluation. The initial DVH A1 ECP production contract was awarded in October 2016 (Sole-Source Firm Fixed Price arrangement). A second buy of DVH A1 ECP vehicles was awarded in October 2017 (Fixed Price Incentive Fee arrangement).</p> <p>On July 2, 2015, ASARC authorization was granted to execute the Stryker 30mm ICVD Operational Needs Statement (ONS) effort. 30mm ICVD Engineering, Manufacturing, and Development (EMD) contracts for Non-Recurring Engineering (NRE) and Logistics Products Development/Test Support were awarded in January 2016 and May 2016, respectively (Cost Plus Incentive-Fee basis). The 30mm ICVD ONS Production/Retrofit contract was awarded in May 2016 through an Undefinitized Contract Action (UCA). Definitization of the Fixed Price Incentive Fee (FPIF) Production contract occurred in March 2017.</p> <p>The Stryker Lethality ECP efforts will focus on the integration of a suite of complementary Mission Equipment Package (MEP) lethality upgrades (medium caliber weapon system, Common Remotely Operated Weapon Station-Javelin (CROWS-J), common masted sensor, Anti-Tank Guided Missile (ATGM) target acquisition optics, and other capabilities) that will improve the suppressive fire and armored vehicle engagement capabilities across the Army's Stryker Brigade Combat Teams (SBCTs). Army Acquisition Executive (AAE) approval to initiate the Stryker CROWS-J ECP and ATGM ECP efforts was received in a September 30, 2016 Acquisition Decision Memorandum (ADM).</p> <p><b><u>E. Performance Metrics</u></b></p> <p>N/A</p>		

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2019 Army</b>												<b>Date: February 2018</b>			
<b>Appropriation/Budget Activity</b> 2040 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>						<b>Project (Number/Name)</b> EE2 / <i>Stryker Improvement</i>			
<b>Management Services (\$ in Millions)</b>				<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Stryker 30mm ICVD ONS Project Management	MIPR	PEO GCS/TACOM : Sterling Heights, MI	4.919	5.914	Jan 2017	-		-		-		-	0.000	10.833	-
Survivability Enhancement Government Engineering and Project Management	MIPR	PEO GCS/TACOM : Various	0.161	0.682	Jan 2017	-		-		-		-	0.000	0.843	-
Project Management Office (PMO)	MIPR	PEO GCS/TACOM : Various	9.236	6.990	Jan 2017	8.650	Oct 2017	16.018	Nov 2018	-		16.018	25.597	66.491	-
<b>Subtotal</b>			14.316	13.586		8.650		16.018		-		16.018	25.597	78.167	N/A
<b>Product Development (\$ in Millions)</b>				<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Stryker DVH A1 ECP Development	SS/CPIF	GDLS, MI : Various	157.869	14.278	Dec 2016	-		7.883	Dec 2018	-		7.883	0.000	180.030	-
Stryker DVH A1 ECP Training Device Updates	MIPR	PEO STRI, FL : Various	-	-		-		1.242	Dec 2018	-		1.242	0.000	1.242	-
Stryker 30mm ICVD ONS Development	SS/CPIF	GDLS, MI : Various	79.220	-		-		-		-		-	0.000	79.220	-
Stryker 30mm ICVD ONS Training Device Updates	MIPR	PEO STRI, FL : Various	-	0.393	Jan 2018	-		-		-		-	0.000	0.393	-
Stryker Lethality ECPs Development	C/Various	PM CSW; PM CCWS : Various	5.373	21.144	Mar 2017	50.639	Apr 2018	23.727	Jan 2019	-		23.727	101.381	202.264	-
Stryker Survivability Enhancement	Various	US Army TARDEC, Various : Sterling Heights, MI	12.860	8.370	Jan 2017	2.133	Oct 2017	-		-		-	0.000	23.363	-
<b>Subtotal</b>			255.322	44.185		52.772		32.852		-		32.852	101.381	486.512	N/A



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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army												Date: February 2018			
Appropriation/Budget Activity 2040 / 7						R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs				Project (Number/Name) EE2 / Stryker Improvement					
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Stryker DVH A1 ECP Testing	MIPR	Army Test Centers : Various	24.160	7.023	Dec 2016	18.760	Dec 2017	1.186	Dec 2018	-		1.186	0.000	51.129	-
Stryker DVH A1 ECP Contractor Support to Test	SS/CPFF	GDLS, MI : Various	23.234	12.220	Dec 2016	0.080	Feb 2018	2.222	Dec 2018	-		2.222	0.000	37.756	-
Stryker 30mm ICVD ONS Test	MIPR	Army Test Centers : Various	6.546	17.000	Oct 2016	-		-		-		-	0.000	23.546	-
Stryker 30mm ICVD ONS Contractor Support to Test	SS/CPFF	GDLS, MI : Various	16.456	10.114	Dec 2016	-		-		-		-	0.000	26.570	-
Stryker Lethality ECPs Testing	MIPR	Army Test Centers : Various	-	3.851	Mar 2017	0.380	Aug 2018	5.016	Dec 2018	-		5.016	7.561	16.808	-
Stryker Lethality ECPS Contractor Support to Test	MIPR	Various : Various	-	1.015	Dec 2016	-		1.572	Dec 2018	-		1.572	6.460	9.047	-
Stryker Survivability Enhancement	MIPR	Army Test Centers : Various	0.635	5.994	Oct 2016	-		-		-		-	0.000	6.629	-
Subtotal			71.031	57.217		19.220		9.996		-		9.996	14.021	171.485	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			340.669	114.988		80.642		58.866		-		58.866	140.999	736.164	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army

Date: February 2018

Appropriation/Budget Activity

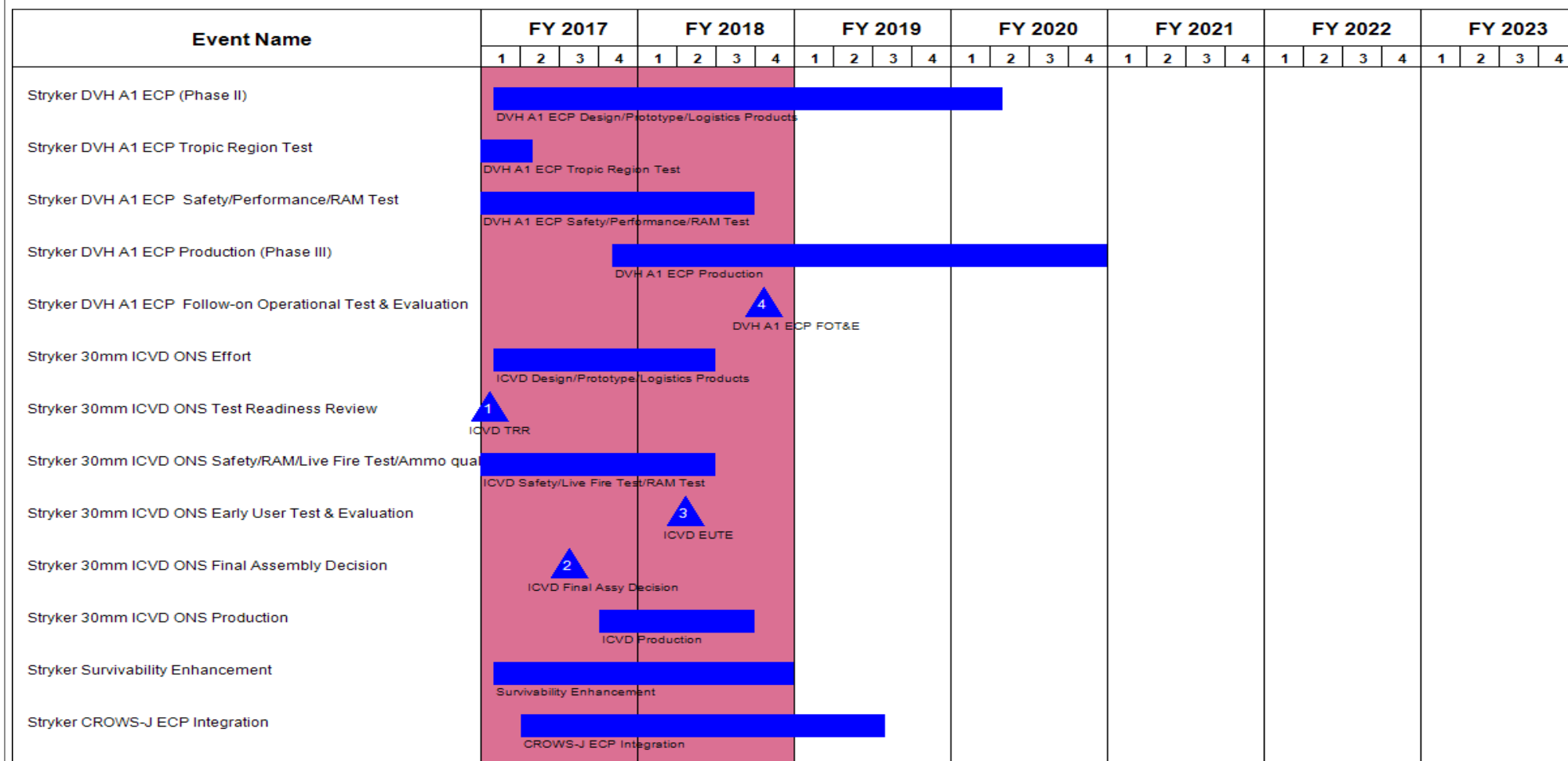
2040 / 7

R-1 Program Element (Number/Name)

PE 0203735A / Combat Vehicle  
Improvement Programs

Project (Number/Name)

EE2 / Stryker Improvement



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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2019 Army</b>			<b>Date: February 2018</b>		
<b>Appropriation/Budget Activity</b> 2040 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>		<b>Project (Number/Name)</b> EE2 / <i>Stryker Improvement</i>	

Event Name	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Stryker CROWS-J ECP Safety/Software/Performance Test																												
Stryker CROWS-J ECP Retrofit																												
Stryker CROWS-J ECP First Unit Equipped (FUE)																												
Stryker ATGM ECP Integration																												
Stryker ATGM ECP Safety/Perf./Elec. Test																												
Stryker Medium Caliber Weapon Trade Study/Cost Benefit Analysis/SSEB																												
Stryker Medium Caliber Weapon Integration																												
Stryker Medium Caliber Weapon Safety/Perf./Live Fire/Electronics Testing																												
Stryker Medium Caliber Weapon Production/Retrofit																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2019 Army			<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	<b>Project (Number/Name)</b> EE2 / <i>Stryker Improvement</i>	

## Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Stryker DVH A1 ECP (Phase II)	1	2014	2	2020
Stryker DVH A1 ECP Tropic Region Test	3	2016	1	2017
Stryker DVH A1 ECP Cold Region Test	1	2016	3	2016
Stryker DVH A1 ECP Safety/Performance/RAM Test	4	2015	3	2018
Stryker DVH A1 ECP Production (Phase III)	4	2017	4	2020
Stryker DVH A1 ECP Follow-on Operational Test & Evaluation	4	2018	4	2018
Stryker 30mm ICVD ONS Effort	1	2016	2	2018
Stryker 30mm ICVD ONS Test Readiness Review	1	2017	1	2017
Stryker 30mm ICVD ONS Safety/RAM/Live Fire Test/Ammo qualification	2	2016	2	2018
Stryker 30mm ICVD ONS Early User Test & Evaluation	2	2018	2	2018
Stryker 30mm ICVD ONS Final Assembly Decision	3	2017	3	2017
Stryker 30mm ICVD ONS Production	4	2017	3	2018
Stryker Survivability Enhancement	1	2017	4	2018
Stryker CROWS-J ECP Integration	2	2017	3	2019
Stryker CROWS-J ECP Safety/Software/Performance Test	4	2019	1	2020
Stryker CROWS-J ECP Retroft	2	2019	4	2026
Stryker CROWS-J ECP First Unit Equipped (FUE)	3	2020	3	2020
Stryker ATGM ECP Integration	4	2017	4	2022
Stryker ATGM ECP Safety/Perf./Elec. Test	2	2020	3	2021
Stryker Medium Caliber Weapon Trade Study/Cost Benefit Analysis/SSEB	1	2018	2	2019
Stryker Medium Caliber Weapon Integration	2	2019	2	2023
Stryker Medium Caliber Weapon Safety/Perf./Live Fire/Electronics Testing	1	2020	2	2023

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Army				Date: February 2018	
Appropriation/Budget Activity 2040 / 7		R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs		Project (Number/Name) EE2 / Stryker Improvement	
		Start		End	
Events		Quarter	Year	Quarter	Year
Stryker Medium Caliber Weapon Production/Retrofit		1	2022	4	2026

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2019 Army										<b>Date:</b> February 2018		
<b>Appropriation/Budget Activity</b> 2040 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>				<b>Project (Number/Name)</b> FD8 / <i>Light Armored Vehicle Improvement</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
FD8: <i>Light Armored Vehicle Improvement</i>	-	0.328	3.100	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.428
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
<b>A. Mission Description and Budget Item Justification</b> Light Armored Vehicle improvement program will design, test and modify two Light Armored Vehicles (LAV-25A2s) for Low Velocity Air Drop (LVAD) to inform operational concepts for Infantry Brigade Combat Teams (IBCT) in support of Global Response Force early entry operations. This will directly support the expeditionary maneuver excursion that will be conducted by the XVIII Airborne Corps in FY17-18.												
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>							<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>	
<b>Title:</b> Government Engineering and Project Management  <b>Description:</b> Funding is provided for the following effort  <b>FY 2018 Plans:</b> The Army plans to use 6 LAV-25A2s in a training excursion to inform operational concepts for Airborne Infantry Brigade Combat Teams in support of Global Response Force early entry operation and to determine airdrop feasibility. XVIII Airborne Corps will have an opportunity to assess operational employment of LAV-25A2s, develop tactics, techniques and procedures and assess the air drop feasibility through air certification testing. The Army plans to determine whether or not to field additional LAV-25A2s to XVIII Airborne Corps based on results of the excursion and air drop testing.  In FY2018 the Army will complete air certification testing to determine LAV-25A2 airdrop feasibility. If the excursion is successful and the Army decides to field additional vehicles it is anticipated that additional modifications and testing will be required to address upgrades to survivability, mobility, integrate Army communications equipment and add obsolescence upgrades for commonality with USMC fielded systems.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> Funding ends in FY18							0.328	3.100	-	-	-	
<b>Accomplishments/Planned Programs Subtotals</b>							0.328	3.100	-	-	-	
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A												

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army		Date: February 2018
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	Project (Number/Name) FD8 / <i>Light Armored Vehicle Improvement</i>
C. Other Program Funding Summary (\$ in Millions)		
Remarks		
D. Acquisition Strategy		
N/A		
E. Performance Metrics		
N/A		

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2019 Army													<b>Date:</b> February 2018		
<b>Appropriation/Budget Activity</b> 2040 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>				<b>Project (Number/Name)</b> FD8 / <i>Light Armored Vehicle Improvement</i>					

<b>Management Services (\$ in Millions)</b>				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Office	Allot	PM office : Warren, MI	-	0.328	Nov 2016	0.325	Nov 2017	-		-		-	0.000	0.653	-
<b>Subtotal</b>			-	0.328		0.325		-		-		-	0.000	0.653	N/A

<b>Support (\$ in Millions)</b>				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Other Support cost	RO	TBD : TBD	-	-		2.775	Mar 2018	-		-		-	0.000	2.775	-
<b>Subtotal</b>			-	-		2.775		-		-		-	0.000	2.775	N/A

			Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			-	0.328	3.100	-	-	-	0.000	3.428	N/A

**Remarks**



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**Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army**

**Date:** February 2018

**Appropriation/Budget Activity**

2040 / 7

**R-1 Program Element (Number/Name)**

PE 0203735A / *Combat Vehicle Improvement Programs*

Project (Number/Name)

## FD8 / Light Armored Vehicle Improvement

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2019 Army			<b>Date:</b> February 2018
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0203735A / <i>Combat Vehicle Improvement Programs</i>	<b>Project (Number/Name)</b> FD8 / <i>Light Armored Vehicle Improvement</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Airdrop Certification NATICK Testing	4	2017	4	2018
2018-CT-ABN-MBPFP-G8710 ATEC Testing	3	2017	4	2018
2017-DT-ATC-MBPFP-G7415 ATC Testing	4	2017	4	2018